Reichert-Jung

REFERENCE MANUAL

METHOD FOR INSERTING AND CALIBRATING REICHERT-JUNG EYEPIECE RETICLES

In Eyepieces Nos. 133, 134, 142, 145, 146(B) 147(B), 157(B), 172, 176(A), 180, 182, 184

A CAMBRIDGE INSTRUMENTS COMPANY

TO INSERT RETICLES

Reticle insertion procedure varies with eyepiece type and construction. Therefore, first identify eyepiece by catalog number engraved on it. Then follow applicable directions below.

1. WIDE FIELD EYEPIECE:

Catalog No. 180, 172*, 176A, 181 — 10X

Accepts reticles of 475-482 Series, 21.9mm in diameter. Place reticle, with ruled side up, into bottom of eyepiece. Seat reticle against field diaphragm (Figure 1). Push retaining ring against reticle to hold in place.

2. WIDE FIELD EYEPIECES:

Catalog Nos	134, 145, 176,	— 10X
	147B, 182, 184,	— 15X
	157B	— 20X

These eyepieces accept reticles of 1400 Series, 20mm in diameter.

*Cat. No. 172 also accepts Series 1400 Reticles as per Section 2.

To insert a reticle into the eyepiece, place the reticle into the No. 148 reticle mount with the ruled side facing up. Slide the mounted reticle into the eyepiece tube until it seats against the field diaphragm.

NOTE: Reticles provided for STEREOSTAR®/Zoom Microscopes are factory-installed in reticle mount.

3. WIDE FIELD EYEPIECES

Catalog No. 146B — 10X

The 146B eyepieces accept reticles of the 1400 series, 20mm in diameter. To install reticle, remove field lens assembly using wrench as indicated in Figure 3. Do not completely disassemble eyepiece. Insert reticle, with ruled side up, into retaining cell of the field lens assembly. Use care to keep lenses clean.

4. HUYGENIAN EYEPIECES:

Catalog No. 133 — 5X

Catalog No. 142 — 10X

Both Cat. No. 133 and Cat. No. 142 accept reticles of 405-427 series, 21mm in diameter. To install a reticle in the Huygenian eyepiece, the reticle must be inserted in the eyepiece from the top with the ruled side facing down, and secured with circular spring retainer.

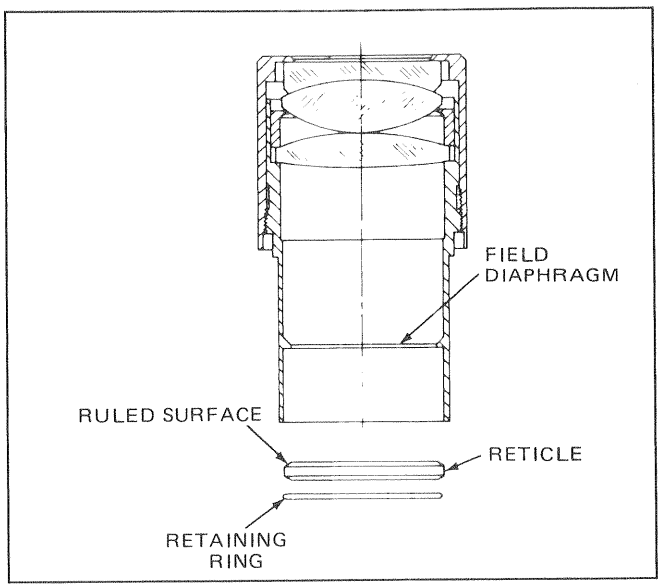


Figure 1. Catalog No. 180 10X Wide Field Eyepiece

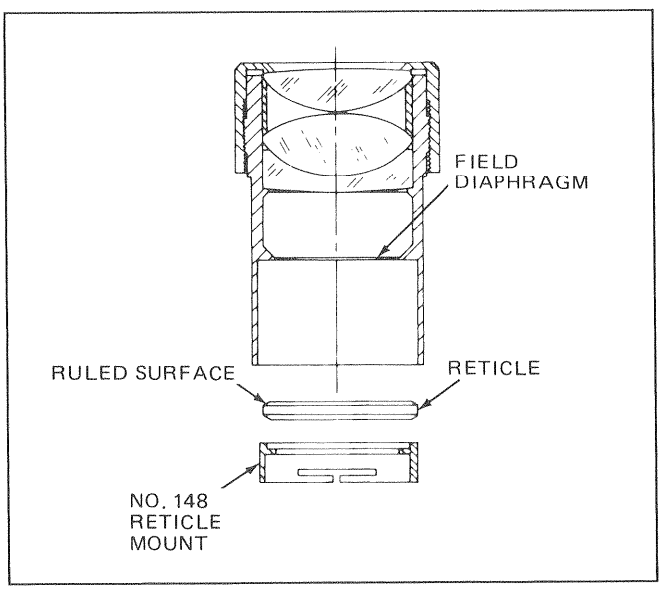


Figure 2. Catalog No. 176A Wide Field Eyepiece

CALIBRATION OF MICROMETER DISC

The projected values of reticle graduations vary with the optical combination used and, consequently, should be pre-calibrated before accurate measurements can be made.

To calibrate, focus on a stage micrometer and move it until the zero graduations on it and on the reticle line up exactly. Choose a graduation as far (numerically) up the reticle scale as possible that corresponds exactly with a line on the micrometer scale. The calibration factor is this distance on the micrometer scale divided by the distance on the reticle scale. The calibration factor is actually the true distance subtended by one unit on the reticle scale.

Example: We have chosen Cat. No. 400 Stage Micrometer (2mm scale/200 divisions) and Cat. No. 475 Reticle (10mm scale/100 divisions), corresponding to X and Y respectively. Note that the zero graduations line up exactly. We can see that the highest reticle graduation that lines up exactly with a micrometer graduation is at 90 divisions. This corresponds with 0.3 on the micrometer scale.

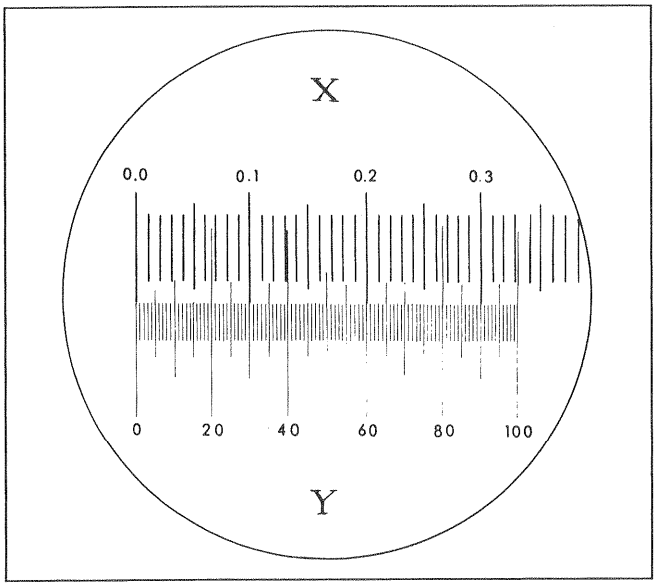
Our calibration factor is:

$$C = \frac{x}{y}$$

$$= \frac{0.3mm}{90}$$

$$= .0033mm \text{ per reticle division}$$

The number of divisions covered by the specimen multiplied by the calibration factor C gives the length of the specimen. For example, if a particular specimen covered 67 reticle units, its true length would be 67 x .0033mm = 0.22mm.



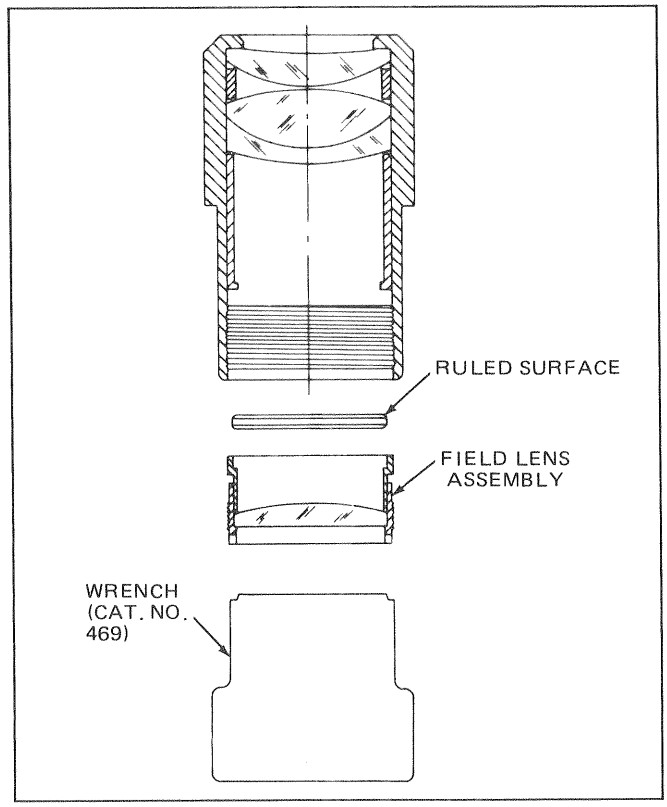


Figure 3. Catalog No. 146 Wide Field Eyepiece

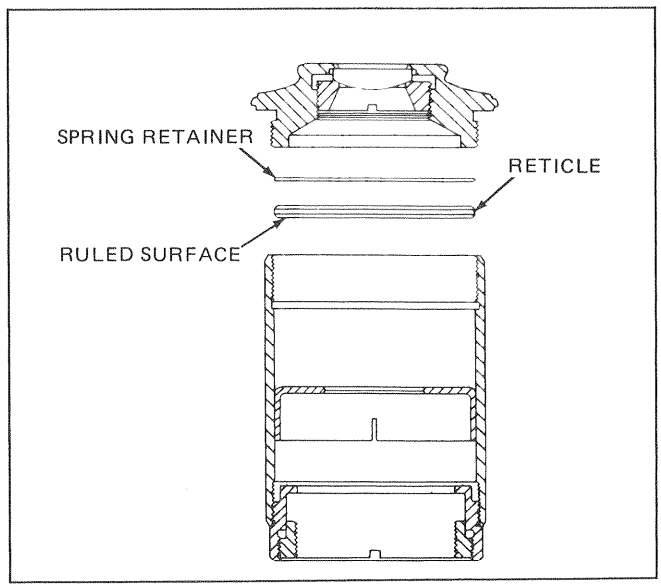


Figure 4. Catalog No. 142 10X Huygenian Eyepiece